

Appln No. 10/796,225
Amdt date May 24, 2007
Reply to Office action of March 16, 2007

REMARKS/ARGUMENTS

The above identified patent application has been amended and reconsideration and reexamination are hereby requested.

Claims 1-34 were pending when the application was last examined. Claims 1-19, 21-32, and 34 are now pending. Claims 1, 19, 21-26, 30, 32, and 34 have been amended. Claims 20 and 33 have been canceled.

Claims Rejections - 35 U.S.C. § 102

The Examiner has rejected Claims 1-18, 28, and 29 under 35 U.S.C. § 102(e) as being anticipated by Higashino et al. (US 7,030,839).

The Applicant's Claim 1 includes (underlining added for emphasis) "... in the sustain period: applying a first pulse to a second electrode of the plurality of second electrodes while a first electrode of the plurality of first electrodes is established [[as]] at a first voltage; and alternately applying to the first electrodes and the second electrodes a sustain pulse with a second voltage defined by a voltage difference between the first electrodes and the second electrodes, wherein the second voltage is less than a voltage difference between the first pulse and the first voltage." The Applicant submits that Higashino et al. does not teach the above limitation.

Higashino et al., while providing for a sustain period with a sustain pulse of V_{sus} (column 10, lines 43), does not provide the above limitation. In Higashino et al., the first pulse in the sustain period T4 to the first display electrode is at voltage V_{sus} while the second display electrode is at ground (see Fig. 5). After the first pulse in the sustain period T4, a pulse also with voltage V_{sus} is applied alternatively between the first and second display electrodes. Thus, in relation to Fig. 5, the first pulse is at V_{sus} , the first voltage is at ground, and the second voltage is at V_{sus} . Consequently, the second voltage (V_{sus}) is not "less than a voltage difference between the first pulse and the first voltage."

Accordingly, the Applicant submits that Claim 1 is not anticipated by Higashino et al. under 35 U.S.C. § 102(e).

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Claims 2-18 are dependent on Claim 1 and therefore include all of the limitations of Claim 1 and additional limitations therein. As such, these claims are also believed allowable based upon Claim 1 and the additional limitations.

The Applicant's Claim 28 includes (underlining added for emphasis) "... applying a setup pulse for forming a first space charge at the selected discharge cell to the discharge cell." The Applicant submits that Higashino et al. does not teach the above limitation.

Higashino et al., while providing for an initialization step before the address period (column 5, lines 12-14), does not provide the above limitation. Higashino et al. teaches that after the address period in which a discharge cell is selected, only a sustain pulse is applied for sustaining an illumination (column 4, lines 52-54), and therefore does not teach (underlining added for emphasis) "applying a setup pulse for forming a first space charge at the selected discharge cell to the discharge cell." Accordingly, the Applicant submits that Claim 28 is not anticipated by Higashino et al. under 35 U.S.C. § 102(e).

Claim 29 is dependent on Claim 28 and therefore includes all of the limitations of Claim 28 and additional limitations therein. As such, this claim is also believed allowable based upon Claim 28 and the additional limitations.

Claims Rejections - 35 U.S.C. § 102

The Examiner has rejected Claims 30-31 under 35 U.S.C. § 102(e) as being anticipated by Homma (US 2003/0141824).

The Applicant's amended Claim 30 includes (underlining added for emphasis) "... in the sustain period: applying a pulse for discharging the selected discharge cell to the discharge cells to generate priming; and applying a sustain pulse to the discharge cell to sustain the selected discharge cell by using the priming." The Applicant submits that Homma does not teach the above limitation.

Homma, while providing for a priming period T_p , does not provide for "in the sustain period: applying a pulse for discharging the selected discharge cell to the discharge cells to

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generate priming; and applying a sustain pulse to the discharge cell to sustain the selected discharge cell by using the priming."

Accordingly, the Applicant submits that Claim 30 is not anticipated by Homma under 35 U.S.C. § 102(e). Claim 31 is dependent on Claim 30 and therefore includes all of the limitations of Claim 30 and additional limitations therein. As such, this claim is also believed allowable based upon Claim 30 and the additional limitations. For example, the Applicant's Claim 31 includes (underlining added for emphasis) "... wherein an address period of a next subfield follows the sustain period of a subfield." According to dictionary.com, "follow" means "to come after in sequence" or "to come next after something else in sequence." The Applicant submits that Homma does not teach the above limitation.

Homma, while providing for an address period and a sustain period, does not provide that "an address period of a next subfield follows the sustain period of a subfield." In Homma, each of the subfields includes a priming period T_p , an address period T_a , a sustain period T_s , and an erasure period T_e (see paragraph [0155] and Fig. 9 at bottom indicating the periods). As indicated in Fig. 9, the address period T_a of $SFp+x$ does not follow the sustain period T_s of SFp , but rather follows the priming period T_p of $SFp+x$. The priming period T_p of $SFp+x$ follows the erasure period T_e of SFp and it is the erasure period T_e of SFp that follows the sustain period T_s of SFp . Therefore, because the erasure period T_e follows the sustain period T_s and not the address period T_a , Homma does not provide "wherein an address period of a next subfield follows the sustain period of a subfield."

Accordingly, the Applicant submits that Claim 31 is not anticipated by Homma under 35 U.S.C. § 102(e).

Claims Rejections - 35 U.S.C. § 102

The Examiner has rejected Claims 32-34 under 35 U.S.C. § 102(e) as being anticipated by Makino (US 2002/0067127).

The Applicant's amended Claim 32 includes (underlining added for emphasis) "... a frequency of the sustain pulse supplied for sustaining the discharge cell in the driving circuit is

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greater than 500KHz and less than or equal to 1MHz." The Applicant submits that Makino does not teach the above limitation with sufficient specificity to constitute an anticipation of the claims (see MPEP 2131.03, section II).

Makino, while providing for a drive frequency of 100kHz (paragraph [0014]) and several MHz (paragraph [0037]), does not provide the disclosed range with sufficient specificity to constitute an anticipation of the above limitation.

The present patent application discloses that the requisite sustain voltage decreases at a sustain pulse frequency greater than 500kHz (see Fig. 14) and that the efficacy is maximized at a sustain pulse frequency between 500kHz and 1MHz (see Fig. 16) due to electromagnetic interference. Given these unexpected results within the claimed narrow range, it is reasonable to conclude that the narrow range is not disclosed with sufficient specificity in Makino to constitute an anticipation of the claims (see MPEP 2131.03, section II).

Accordingly, the Applicant submits that Claim 32 is not anticipated by Makino under 35 U.S.C. § 102(e).

Claim 34 is dependent on Claim 32 and therefore includes all of the limitations of Claim 32 and additional limitations therein. As such, this claim is also believed allowable based upon Claim 32 and the additional limitations.

Claims Rejections - 35 U.S.C. § 103

The Examiner has rejected Claims 19-27 under 35 U.S.C. § 103(a) as being unpatentable over Higashino et al. (US 7,030,839) in view of Holtslag et al. (US 2002/006732).

The Applicant's Claim 19 includes (underlining added for emphasis) "... wherein during the sustain period, the driving circuit applies a setup pulse to the second-electrodes while maintaining the first electrodes at a first voltage, and respectively applies first sustain pulses and second sustain pulses with predetermined frequencies to the first electrodes and the second electrodes, and the setup pulse generates a discharge between the first electrodes and the second electrodes at the selected discharge cell, wherein the setup pulse has a waveform for generating a discharge between the first electrodes and the second electrodes at the selected discharge cell to

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form a first space charge, a voltage level difference between the first sustain pulses and the second sustain pulses when the first sustain pulse has a high-level voltage and a voltage level difference between the second sustain pulses and the first sustain pulses when the second sustain pulse has a high-level voltage are a second voltage level, and the second voltage level is within a range for establishing the first space charge as a priming particle to generate a discharge between the first and second electrodes." The Applicant submits that all of the limitations as claimed in Claim 19 are neither taught nor suggested alone or in combination in the references Higashino et al. and Holtslag et al.

Higashino et al., while providing pulses in first and second initialization periods T1, T2 (column 8, lines 19 - 54) before the addressing step (column 5, lines 12-14) that generate an initialization discharge (column 8, line 20), does not provide for "... wherein during the sustain period, the driving circuit applies a setup pulse to the second-electrodes while maintaining the first electrodes at a first voltage, and respectively applies first sustain pulses and second sustain pulses with predetermined frequencies to the first electrodes and the second electrodes, and the setup pulse generates a discharge between the first electrodes and the second electrodes at the selected discharge cell, wherein the setup pulse has a waveform for generating a discharge between the first electrodes and the second electrodes at the selected discharge cell to form a first space charge, a voltage level difference between the first sustain pulses and the second sustain pulses when the first sustain pulse has a high-level voltage and a voltage level difference between the second sustain pulses and the first sustain pulses when the second sustain pulse has a high-level voltage are a second voltage level, and the second voltage level is within a range for establishing the first space charge as a priming particle to generate a discharge between the first and second electrodes."

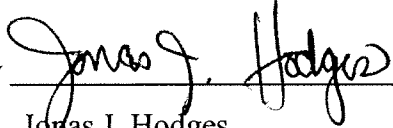
Accordingly, the Applicant submits that the references do not teach or suggest all of the claim limitations, and therefore Claim 19 is patentable over Higashino et al. in view of Holtslag et al.

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Claims 20-27 are dependent on Claim 19 and therefore include all of the limitations of Claim 19 and additional limitations therein. As such, these claims are believed allowable based upon Claim 19 and the additional limitations.

Therefore, in view of the above amendment and remarks it is respectfully submitted that the claims are patentably distinct over the prior art and that all the rejections to the claims have been overcome. As such, allowance of the above Application is requested. If there are any remaining issues that can be addressed over the telephone, the Examiner is cordially invited to call the Applicant's attorney at the number listed below.

Respectfully submitted,
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